

REMARKS

Claims 1 – 12 and 14 – 16 are pending in this application with claim 1 being amended by this response. Claim 1 has been amended to clarify features of the present arrangement. Support for the amendment can be found throughout the specification and original claims, particularly in paragraphs [0043] and [0048]. Applicant respectfully submits that no new matter has been added by these amendments.

Rejection of claims 1 – 6, 9, 11 and 12 under 35 USC 102(e)

Claims 1 – 6, 9, 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Appleton et al (US 6,4371,079), (hereinafter US'079).

Amended claim 1 provides a conduit gripping apparatus for a vehicle travelling along a conduit in which fluid is flowing. The apparatus includes a body and a plurality of surface engaging elements. Each surface engaging element is adapted to engage a surface of the conduit and resist relative movement of the element and the surface of the conduit in a first direction along the conduit more than in a second direction opposite to the first direction. Each surface engaging element is adapted to execute reciprocating longitudinal sliding movement, relative to the body, having a component substantially parallel to the first and second directions. Not all of the surface engaging elements execute the reciprocating movement in phase with each other. The surface engaging elements remain in contact with the surface of the conduit during the reciprocating movement.

Claim 1 has been amended to clarify that each surface engaging element is adapted to execute reciprocating longitudinal sliding movement relative to the body of the apparatus. As discussed in paragraph [0012] of the present application, surface engaging elements not all of which execute the reciprocating movement in phase with each other provide the advantage of staggering the phases of motion of the surface engaging elements to enable making the motion of a vehicle incorporating the conduit gripping apparatus as uniform as possible. In addition, surface engaging elements that remain in contact with the surface of the conduit during their reciprocating movement, enable providing traction more efficiently than in conventional devices.

US'079 describes a vehicle for traversing a surface. The vehicle includes two or more bodies interconnected by a structure for moving the bodies towards and away from each

other, each of the bodies supported upon a multiplicity of resilient bristles extending from it (US'079 col. 1, lines 50 – 53). In US'079, the two or more bodies (10, 11) in the embodiment are interconnected by a pneumatic cylinder (12) (col. 4, lines 45 – 51 and Figures 1 – 4). In order to advance the vehicle in a given direction, the cylinder is alternately extended and retracted, causing the vehicle to advance, progressively and stepwise, in the required direction (col. 4, line 61 – col. 5, line 7 and Figures 2 – 4). As the cylinder is extended and the bodies are forced apart, the forward body moves forward on the surface, while the rear body remains stationary. As the cylinder is retracted and the bodies are forced closer, the forward body remains stationary while the rear body moves forward to approach it. The motive force applied to the vehicle derives from the extension and contraction of the interconnection between the bodies, enabling forward motion because of the difference in friction between the bristles when force is applied in the same direction as their inclination or in the opposite direction to their inclination against the surface (col. 2, lines 34 – 40 and lines 53 - 65).

The vehicle in US'079 is completely unlike a vehicle incorporating the present claimed arrangement. As clearly seen in Figures 2 to 4 of US'079 and described in the corresponding portion of the specification, during movement of the bodies (10, 11) along the pipe (16), the bristles do not execute “reciprocating longitudinal sliding movement, relative to the body” as recited in claim 1 of the present arrangement. The bristles in US'079 are instead **stationary relative to their body** (10, 11). Hence, the necessarily resulting stepwise movement of the bodies in US'079 is very different from the smooth and continuous motion enabled by the operation of the surface engaging elements of a vehicle incorporating the present claimed apparatus.

The present arrangement as recited in claim 1 discloses a conduit gripping apparatus for a vehicle. The gripping apparatus includes a body and a plurality of surface engaging elements “adapted to execute reciprocating longitudinal sliding movement, relative to the body,” and in which “not all of said surface engaging elements execute said reciprocating movement in phase with each other.” Unlike the present apparatus, the bristles in US'079 are in no way “adapted to execute reciprocating longitudinal sliding movement, relative to the body” as recited in claim 1. Since the bristles in US'079 move with their body, they are incapable of executing “reciprocating longitudinal sliding movement, relative to the body” as recited in claim 1.

Moreover, US'079 is completely silent about differentiating among the surface engaging elements of a body. Although US'079 describes “a multiplicity of bristles,” there is

no disclosure or suggestion of their arrangement in a “plurality of surface engaging elements” attached to a single body. US’079 is completely silent regarding any phase relationship among multiple surface engaging **elements attached to a body**. US’079 does describe a possible phased relationship **among multiple bodies** of the conduit traversing vehicle, if more than two bodies comprise the vehicle (US’079 col. 3 lines 49 – 58), but the phased relationship is among the bodies. This is completely unlike the present arrangement, in which “a plurality of surface engaging elements . . . [are] . . . adapted to execute reciprocating longitudinal sliding movement, relative to the body” and are also adapted so that “not all of said surface engaging elements execute said reciprocating movement in phase with each other” as recited in claim 1. Thus, US’079 does not disclose or suggest “a plurality of surface engaging elements . . . wherein each said surface engaging element is adapted to execute reciprocal longitudinal sliding movement, relative to the body” and wherein “not all of said surface engaging elements execute said reciprocating movement in phase with each other” as recited in claim 1. In view of the above remarks and amendments to the claim, Applicant respectfully submits that claim 1 is not anticipated by US’079 and is thus patentable over US’079. Consequently, Applicant respectfully requests withdrawal of the rejection of claim 1.

Claims 2 – 5 are dependent on claim 1 and are considered patentable for the reasons presented above with regard to claim 1.

Claim 6 is dependent on claim 1 and therefore patentable for the same reasons as claim 1 discussed above. Claim 6 is further considered patentable because US’079 neither discloses nor suggests that “a plurality of said surface engaging elements are adapted to execute said reciprocating movement in a direction substantially parallel to an axis of the body” as recited in claim 6. The bristles in US’079 do not move relative to the body, but only with the body as a result of forces applied to the body. They are in no way “adapted to execute said reciprocating movement in a direction substantially parallel to an axis of the body” or in any other direction. Consequently, Applicant respectfully submits that the rejection of claim 6 is satisfied and should be withdrawn.

Claims 9 and 10 dependent on claim 1 and are considered patentable for the reasons presented above with regard to claim 1.

Claim 11 is dependent upon claim 1 and is considered patentable for the reasons presented above with regard to claim 1. Claim 11 is further considered patentable because US’079 neither discloses nor “wherein, throughout the reciprocating motion, approximately

half of said surface engaging elements are moving in said first direction and approximately half in said second direction relative to the body" as recited in claim 11. Because US'079 fails to disclose surface engaging elements that move relative to the body, it also fails to disclose "wherein, throughout the reciprocating motion, approximately half of said elements are moving in said first direction and approximately half in said second direction relative to the body" as claim 11 recites. Consequently, Applicant respectfully submits that the rejection of claim 11 is satisfied and should be withdrawn.

Claim 12 is dependent on claim 1 and is considered patentable for the reasons presented above with regard to claim 1.

Having fully addressed Examiner's rejections, it is respectfully submitted that, in view of the preceding amendments and remarks, the rejection of claims 1 – 6, 9, 11, and 12 is satisfied and should be withdrawn.

Objection of claims 7, 8, 10 and 14 - 16

Claims 7, 8, 10, and 14 – 16 are objected to as being dependent upon a rejected base claim.

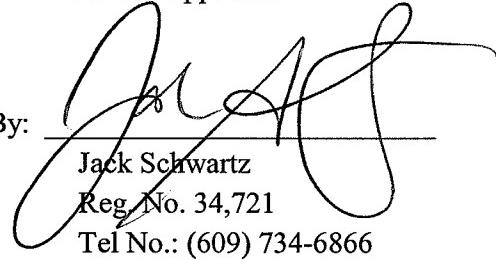
Claims 7, 8, 10 and 14 – 16 are dependent on claim 1. In view of the above remarks with regard to claim 1, it is respectfully submitted that the rejection of claim 1 has been satisfied and should be withdrawn. Consequently, Applicant respectfully submits that, due to their dependence on claim 1, claims 7, 8, 10 and 14 – 16 are patentable in their current form for the reasons presented above regarding claim 1.

Having fully addressed Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly, then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the Applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephone interview may be scheduled.

Please charge the additional fee for the extension of time for a response, pursuant to 37 CFR 1.17(a)(1), to the credit card indicated with filing. Please charge any additional fee or credit any overpayment to Deposit Account 50-2828.

Respectfully submitted,
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